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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/624,331

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Shinichi Nishikawa

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EXAMINER

DEGHAN, QUEENIE S

ART UNIT

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1731

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	Application No. 10/624,331	Applicant(s) NISHIKAWA, SHINICHI	
	Examiner Queenie Dehghan	Art Unit 1731	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 27 April 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on April 27, 2007 has been entered.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 1-9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. Claim 1 is unclear as to what temperatures are inputted to a temperature control.

5. Claim 1 is also unclear as to which temperatures to the surfaces are lower than that of the dropping molten glass, i.e. temperature when the glass is dropping, temperatures when the mold is idle, etc.

***Claim Rejections - 35 USC § 103***

6. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

7. Claims 1, 4, and 6-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ikeuchi (5,738,701) and Nishikawa (2002/0053223) in view of Parsons et al. (3,900,328). Ikeuchi teach an optical element manufacturing method comprising the pressing and dropping of molten glass. Ikeuchi disclose a method comprising preparing a lower mold having an optical function surface with an outer shape restricting surface, forming a positioning reference surface on a rim of an optical element, dropping molten glass onto the lower mold surface so as to collide with the lower mold surface and be in contact with outer shape restricting surface, pressing the glass while it is still deformable and forming the optical function surfaces of the optical element (col. 4 lines 14-41, col. 5 lines 1-10, 48-51). Although not specifically recited, since the glass is press molded, it would have been obvious to one of ordinary skill in the art at the time the invention was made to expect that the lower mold of Ikeuchi would have an opposing upper mold with similar optical function surface, since that is how press molding of optical elements occurs. Furthermore, Ikeuchi discloses controlling the heating of the outer shape restricting surface and lower mold to a constant target temperature in the vicinity of the glass transition temperature of the molten glass, which is clearly higher than T<sub>g</sub>-100 (col. 5 lines 5-7). It would have been obvious to one of ordinary skill in the art at the time the invention was made to also expect that the upper mold to be heated to similar temperature as the other molding surface, since Ikeuchi mentions the importance of

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maintaining the surfaces at a temperature, such as the transition temperature, to prevent wrinkles in the glass. Furthermore, Ikeuchi also disclose a temperature of the dropping molten glass to be in the range of 500-1400°C depending on the glass used (col. 3 lines 10-15). By setting the mold surfaces of Ikeuchi to a temperature around the glass transition temperature and utilizing SF57, which has a T<sub>g</sub> of 443°C, as present by Ikeuchi among the many glass types used (col. 11 line 42), it is clear that the surfaces are at a temperature (443°C) lower than that of the dropping molten glass (at least 500°C).

8. The teaching of Ikeuchi are further exemplified by Nishikawa, who teaches a similar manufacturing process for optical elements comprising dropping molten SF57 glass at a temperature of 1000°C ([0050]) onto the lower mold with an optical function surface which has been prepared to a temperature of 400°C, which is higher than T<sub>g</sub>-50 of SF 57 glass and lower than the temperature of the dropping molten glass and lower than T<sub>g</sub>+ 100°C, and bringing the opposing upper mold (which is heated to 400°C as well) and lower molds together to press the glass (figure 6, [0058], [0059]).

Furthermore, Nishikawa teach of a process where molten glass drop amount is adjusted by colliding the drop with a micro through hole disposed on the dropping path and pushing out a micro drop out of the hole and dropping onto a lower molding surface (abstract, figure 6). It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the upper mold and specific surface temperatures as suggest by Nishikawa in the process of Ikeuchi in order to provide for an optical

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element that is press molded and without defects such as surface marks and to also eliminating the need for grinding.

9. Both Ikeuchi and Nishikawa fail to disclose the specific step of releasing the glass from upper and lower molds and taking out the molded optical element. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to expect that the optical lens was released from the mold and taken out, since an optical lens was obtained ([0059] of Nishikawa).

10. Ikeuchi briefly mentions controlling the mold to a specific temperature, but does not mention inputting temperatures to a temperature control. Parsons teach press molding optical elements wherein the molds are heated via heaters and thermocouples in the molds are used for controlling the set temperature of the molds (col. 6 lines 30-35, col. 7 lines 6-10). It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the temperature inputs for controlling the heating of the molds to a target temperature of Parsons in the process of Ikeuchi and Nishikawa in order to ensure that the molds are maintained at a constant target temperature.

11. Claims 2 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ikeuchi (5,738,701) and Nishikawa (2002/0053223) in view of Parsons et al. (3,900,328), as applied to claim 1 above, in further view of Shimizu et al. (JP abstract 60-171231). Although Ikeuchi discloses the flexibility of changing the shape of the reference surface, Ikeuchi fails to specific mention a second reference surface on the lower mold surface. Shimizu et al. disclose a molding assembly where the lower mold has a restricting surface for forming a second positioning reference surface outside an

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effective diameter surface in drawings 1-6, wherein the surface is inherently formed simultaneously with the forming of the positioning reference surface on the rim of the optical element as the molds are brought together as mentioned in claim 1 above. It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the mold of Shimizu in the process of Ikeuchi as a variant of the desired molds to be use to press mold the desired shape of the final optical element.

12. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ikeuchi (5,738,701) and Nishikawa (2002/0053223) in view of Parsons et al. (3,900,328), as applied to claim 1 above, in further view of Teramoto (6,288,849). Ikeuchi, Nishikawa and Parsons fail to disclose an optical element whose positioning reference surface is non-circular in a cross section perpendicular to the optical axis. Teramoto teach of an optical element with a cross section of the positioning reference surface perpendicular to the optical axis that is non-circular (figures 12-13, col. 6 lines 18-25). It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the shape of the optical element of Teramoto in the process of the press molding optical elements of Ikeuchi, Nishikawa, and Parsons because of its desired shape for use in a camera, as taught by Teramoto.

### ***Response to Arguments***

13. Applicant's arguments with respect to claims 1-6 have been considered but are moot in view of the new ground(s) of rejection. However, the applicant points out that

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the glass and molds are heated to similar temperatures in reference to the prior arts of Marechal and Parsons. The claim is not specific regarding the temperature of the glass.

14. Furthermore the applicant mentions that the mold of Nishikawa is not heated prior to dropping the droplets, which is not true, as pointed out above.

15. Furthermore, the applicant points out that the references fail to show molds having a temperature below the transition temperature of molten glass, which is not a claimed limitation.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Queenie Dehghan whose telephone number is (571)272-8209. The examiner can normally be reached on Monday through Friday 8:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571-272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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